

REMARKS

Reconsideration and allowance of the application on the basis of the foregoing amendments, and for other reasons; are respectfully requested.

Twenty claims were pending in the application. All were rejected.

Claims 1, 2, 4, 7, 9, 10, 12, 15, 16, and 18 were rejected under 35 USC 103(a) as being unpatentable over Berger et al (5,526,421), and further in view of Minami et al (5,555,310). The Examiner stated that "Berger discloses a device for a telephone (Fig. 1) comprising an electrical voice transmission system and an electrical transmission line (elements 13, 21, 23 in Fig. 2). The device further comprises microphone 13 (Fig. 1) to pickup voice and deliver it to a transmission line. The device further comprises remote transmission block 22 (Fig. 2, Col. 2, lines 47-55). The device further comprises speakers 14 near microphone 13 for providing a voice cancellation sound (Fig. 1, Col. 2, lines 47-55), and signal processor 20 (Fig. 2) that receives an input from the transmission line (from telephone mouthpiece 13). It provides output to speakers 14 (Fig. 2) to generate a voice cancellation sound (Col. 2, line 63, to Col. 3, line 7)." The Examiner then notes that "Berger does not disclose that the processor concurrently outputs a signal to a modulator to subtract the electrical voice cancellation sound that is picked up by the microphone."

To remedy this deficiency, the Examiner turned to Minami.

\ The Examiner states that "Minami teaches a stereo echo cancellation system in which the sound output by each speaker is also sent to modulator 110 in order to subtract any echos picked up by microphone 101 (Fig. 13, Col. 18, line 49 to Col. 19, line 15). Berger's [sic] system is a stereo system with one speaker outputting a far-end voice and the other speaker outputting a near end voice canceling sound. It would have been obvious to one of ordinary skill in the art at the time of this application to subtract the echo of the cancellation signal (BERGER: Fig. 2 signal 24) (as well as the echo of the far end voice signal) from the microphone input for the purpose of reducing the amount of echo on the transmitted signal (MINAMI: Col. 3, lines 57-63).

The Examiner is correct in noting that "Berger does not disclose that the processor concurrently outputs a signal to a modulator to subtract the electrical voice cancellation

sound that is picked up by the microphone." But neither does Minami: Minami simply does not have a "voice cancellation sound that is picked up by the microphone". It may be true that he cancels echos of sound signals originated by others; but he does not cancel sound cancellation signals originated by the user, let alone in the way applicant's device does.

Minami has an invention related to tele-conference devices - basically two distant groups of people communicate with each other over phone lines and are able to hear as well as see each other. The speakers play the voices from the distant group and the microphones pick up the local conversation and transmit it. Generally that which is played from the speaker produces echos which Minami removes from the microphone input at the sent to location.

Not so in applicants' device. Applicants remove not only a different thing, namely the voice cancellation signal, but also it before it is transmitted. Furthermore, they do it for a different purpose, to wit, conversation privacy. Conversation privacy is anything but the intended purpose of Minami's device.

Minami really involves non-analogous art: "echo cancellation" vs. applicants' "voice cancellation". "Voice cancellation" is the application of the "inverse" of the signal, whereas "echo cancellation" is the cancellation of reflections (delayed & amplitude reduced) of the original signal.

Applicants' invention has two goals: 1) a clear voice signal to the recipient of the call, and 2) cancellation of voice about some distance from the person speaking on a phone like a cell phone.

It is improper to combine art involving canceling echoes and sounds produced by the speakers of the teleconference device that corrupt its microphone, with Berger's voice cancellation device to produce applicants' voice cancellation device transmitting a corruption-free voice signal. Moreover, a different type of corruption is involved. What ends up corrupting the transmitted voice signal in applicants' case is not the "pure" cancellation signal played by the speakers but the "leftover" or resultant signal from the interaction of the cancellation signals with the person's voice. In the teleconference device the signal played by the speaker (the far end conversation etc.) directly and indirectly through echoes corrupts that which is picked up by the microphone. In applicants'

case the signal played by their speakers (i.e. the cancellation signal) does not directly corrupt that which is picked up by the microphone because these cancellation signals interact with the person's voice before reaching the microphone. Thus combining Berger's and Minami's arts is like combining apples and oranges.

Accordingly, it is submitted that claims 1, 2, 4, 7, 9, 10, 12, 15, 16, and 18 are patentable over Berger et al (5,526,421), and in view of Minami et al (5,555,310), as they existed.

Nevertheless, in order to expedite the prosecution of the application, applicants have amended the base claims 1, 9 and 18 to make more clear applicants' invention. Thus claim 1, and hence all of its dependent claims, now specify that an "electrical voice transmission system for transmitting an uncorrupted voice signal while effectuating conversational privacy to the user". Nowhere is this found in the art.

Independent claim 1, and hence its dependent claims, have been amended to specify an "electrical voice transmission system for transmitting an uncorrupted voice signal while effectuating conversational privacy to the user". Independent claim 9, and hence its dependent claims, have been amended to specify a "device for attachment to a telephone handset having a microphone to render the telephone capable of transmitting an uncorrupted signal while effectuating conversational privacy". Independent claim 18, and hence its dependent claims, have been amended to specify a "method for transmitting uncorrupted voice over an electrical transmission line while canceling it spatially".

Applicants wish to further note that the references do not teach "another speaker near the microphone and connected to the signal processor for delivering voice as it was spoken into the microphone for hearing by the voice source", as required by claims 15-17. Note also method claim 20. This feature aids and abets privacy because "Otherwise, the person would instinctively raise his or her voice to compensate for the reduction in the heard sound of their own voice, negating privacy and raising intrusive noise".

Applicants' claims are very specific. For example, claim 1 requires inter alia:

"a signal processor receiving input from the transmission line before the modulator and providing output concurrently to the speaker to generate a voice cancellation sound and to the modulator to subtract from the transmission line downstream thereof the electrical voice cancellation sound signal picked up before by the microphone".

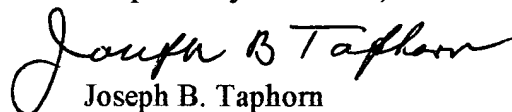
Thus the claim specifies that a "signal processor receive input from the transmission line before the modulator and provide output concurrently to the speaker to generate a voice cancellation sound and to the modulator to subtract from the transmission line downstream thereof the electrical voice cancellation sound signal picked up before by the microphone". This is a new arrangement untaught by the art, and certainly not by any combination of Berger and Minami. The arrangement required by the claims is unobvious.

Claims 3, 5-8, 11, 13, 14, 17, 19, and 20 were rejected under 35 USC 103(a) as being unpatentable over Berger et al (5,526,421) and Minami et al (5,555,310) as applied to claims 1, 2, 4, 5, 9, and 10, and further in view of Pongsen (4,006,308); the Examiner alleging that Berger and Minami disclose applicant's claims 1, 2, 4, 5, 9, and 10, but do not specify arranging the voice cancellation speakers and far-field sensors (microphones) respectively each in a spherical pattern about the handset microphone. As noted above, Berger and Minami do not teach the invention of applicant's claim 1. Applicants urge therefore that their more specific claims are not taught by Berger and/or Minami either.

Applicants submit that modifying Berger in the light of Minami and/or Pongsen does not yield applicants' device, that Minami is non-analogous art, and that the claims, particularly as amended clearly set forth applicants' inventive contribution to the art. Applicants believe they have made a meritorious contribution to the art, and that the claims recite this contribution.

Wherefore this application is deemed to have been placed in condition for allowance, which favorable action at an early date is earnestly solicited.

Respectfully submitted,



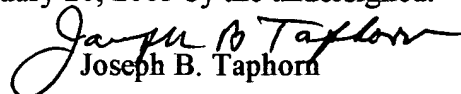
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